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Deciduoma Malignum

A Clinical Review

BY

LOUIS J. LADINSKI, A.B., M.D.

Adjunct Professor of Gynecology, New
York Polyclinic Medical School and
Hospital; Visiting Surgeon, Gouverneur
and Beth Israel Hospitals; Fellow of the
New York Academy of Medicine, the
American Medical Association, etc.,
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DECIDUOMA MALIGNUM.¹

A CLINICAL REVIEW.

HOWEVER much has been accomplished in recent years in the way of clearing up some of the disputed points in reference to the origin and nature of deciduoma malignum, and notwithstanding that the subject has received the careful and minute study of many distinguished investigators, there is at the present time considerable uncertainty as to the true pathogenesis of this disease.

To Säger¹ is due the credit of first calling attention to this class of tumors when, in 1888, before the meeting of the Obstetrical Society of Leipzig, he reported two cases of malignant disease of the uterus following pregnancy and suggested the name of deciduoma malignum.

Pfeiffer,² in 1889, and independently of Säger, also reported a case and proposed the same designation. Various other names were subsequently suggested by different observers—as, for instance, “sarcoma chorii” by Gottschalk,³ “infectious hemorrhagic sarcoma” by Pestalozza,⁴ and “blastoma chorio-deciduo-cellulare” by Sehmorl.⁵

Säger⁶ in 1893 published a paper based on a review of his case and a study of eleven other cases reported up to that time, and substituted the term “sarcoma uteri deciduo-cellulare.”

¹Read before the Section of Obstetrics and Gynecology, New York Academy of Medicine, January 23, 1902.

In the discussion following the presentation of a case by Dr. Herbert Spencer⁷ at a meeting of the Obstetrical Society of London, held in May, 1896, it was the unanimous opinion, offered in the form of a report, that these cases of so-called deciduoma malignum were sarcomata and presumably of uterine connective-tissue origin.

Marehand,^{8,9} however, in 1895 was the first to point out the epithelial structure of these tumors; and again in 1898, in discussing the four possible sources of their origin—namely, the decidual cells, the syncytium, Langhans-cell layer, and the mesoblastic stroma of the villi—concluded from his study of two cases that these tumors were composed of the syncytium and Langhans cells.

That these various designations are applied to the growth is due to the fact that there is not only a marked difference in the anatomical structure of the tumors heretofore examined, but there is also a difference of opinion as to the correct interpretation of the elements found.

Generally speaking, the growth may be classified according to one of the following three principal views:

1. The opinion of the English school, that these tumors are sarcomata and of connective-tissue origin: that the elements of the disease have existed in the uterine independently of pregnancy, but are modified by it.

2. The original theory of Säger¹ when he proposed the name of deciduoma malignum, that the growth is the result of malignant changes in the decidual cells, that is to say, that it is a sarcoma developing from the products of conception. The cases of Menge,⁴³ Löhlein,³⁹ Pfeiffer,² Reinecke,⁷⁵ Chiari,³¹ Gottschalk,⁸ Tannen,⁵² Acel,⁶⁴ Munod,⁷⁴ Veit,⁸⁶ and Winkler,¹¹⁸ may be classified under this head.

3. The view of the large majority of German writers, that the growth is the result of a proliferation of the epithelial layers covering the chorionic villi, hence an epithelioma. In this classification belong the tumors of Gebhard,⁷¹ Scherer,⁹¹ Marchand,⁸ Neumann,²⁶ Von Franqué,⁶⁸ E. Fränkel,⁷⁸ Aschoff,⁵⁸ Prochownik,⁹³ and Williams.⁵⁴

Kossmann,²¹ L. Fränkel,⁴⁰ and Durante¹⁶ believe these tumors to be composed of purely syncytial masses.

The question whether this neoplasm takes its origin from maternal or fetal structures is still a mooted one, and will remain

so until the origin of the epithelial covering of the chorionic villi is determined with some degree of accuracy.

All observers are now agreed, with very few exceptions, that this covering consists of a double layer of epithelium, as first pointed out by Langhans.¹⁰ The outer layer, that nearest the external wall, or syncytium, is composed of bands of protoplasm in which are very deeply staining nuclei of various shapes, arranged mostly in a single row, and not divided into definite cells. The inner layer, or Langhans-cell layer, consists of definitely marked cuboid or cylindrical epithelial cells. Beneath this is the connective-tissue stroma of the villi.

There is, however, a decided difference of opinion as regards the origin of the syncytium and Langhans-cell layer. Thus we have (1) the theory of Kastsechenko,¹¹ Minot,¹² Gottschall,¹⁰⁹ and Albert,¹⁴ that the syncytium and Langhans-cell layer are both derived from the fetal ectoderm, that the syncytium is primary and the cell layer is derived from it; (2) that of Hubrecht,¹⁵ Peters,¹⁷ Marehand,⁸ and Asehoff,¹⁸ that the cell layer is primary and the syncytium derived from that; and (3) Strahl,¹⁹ Merttens,²⁰ Kossmann,²¹ Van der Hoeven,²² and Williams²³ believe that the Langhans-cell layer is of fetal origin and the syncytium is derived from uterine surface epithelium.

The histology as well as the pathology of this disease, therefore, is far from settled and still remains a subject for controversy among pathologists. Thus we have a growth which, according to the various opinions of different writers, is either a sarcoma or carcinoma or a combination of both, and which may be derived from maternal or fetal structures or from both.

In view of our present state of knowledge, therefore, I am inclined to believe with Williams²³ that the term deciduoma malignum, first proposed by Sanger,¹ and which has since been applied to the majority of cases, is the most appropriate one. At any rate, in order to avoid confusion of terms in the future, it seems to me perfectly feasible, from a clinical standpoint, that this designation should be universally adopted.

Clinically, however, the disease presents a clear and distinct picture; the signs, symptoms, and course of the disease, as based on a careful analysis of the histories of the cases heretofore recorded in the literature, are so characteristic and unmistakable that I believe it is only necessary to call attention to this insidious and fatal malady and the cases of deciduoma malignum will

be promptly recognized and diagnosed with precision in the future. There is not the least doubt that these cases have occurred much more frequently than the records show, and that they have been entirely overlooked or have been designated by some other term.

As a typical case of this disease, for the purpose of illustration, I will recite in detail the history of my patient.

H. G., born in Austria, aged 19. Family history negative. Previous history good. Married one and a half years; had one child in July, 1900, which she nursed for eight months. Menstruated in April and May, 1901; no menstruation in June. About the middle of July she began to complain of pain in the lower part of the abdomen. Was examined in a dispensary, where she was told that she was pregnant. About the end of July she had some uterine hemorrhage and later escape of about a quart of clear fluid tinged with blood. She then began to cough and had bloody expectoration. About a week later she was seized with uterine hemorrhage at night and was tamponed by a physician. Dr. Louis Friedman was called in the morning, when he found her bleeding severely. The vagina was distended with blood clots, the os was dilated about two fingers, and the uterus was as large as a six-months pregnancy. The patient had severe labor pains. On removing half a pailful of hydatid cysts the uterus contracted and the bleeding partly ceased. He tamponed her and sent her to Gouverneur Hospital for further treatment.

On admission to the hospital, August 7, examination showed the uterus to be enlarged and soft, os dilated, and bleeding from cavity. Temperature 100°, pulse 120, respiration 32. On the same day, under ether anesthesia, Dr. Bradner, the house surgeon, curetted her, bringing out a few small cysts with some shreds. The uterus was irrigated with saline solution and packed. The patient was returned to the ward in good condition. She did well and was discharged August 23.

She returned on September 5, complaining of pain over the uterus, and upon examination the uterus was found to be enlarged and congested and bleeding slightly. She was put on tonics and ergot and was given douches. As the slight bleeding continued, Dr. Bradner again curetted the uterus on September 10. There was very little removed; the uterus was irrigated and packed. She was put on ergot, strychnine, and given bichlorid douches. Under this treatment the size of the uterus

was somewhat reduced. She looked very anemie, but under the administration of iron she grew a little better and was discharged September 29.

During the night of October 3 she was again seized with severe uterine hemorrhage and Dr. Friedman was hurriedly called. He tamponed her and sent her to my service in Gouverneur Hospital.

I examined the patient for the first time on the morning of October 4. She was very anemie, all the muscles were soft and flabby, and the skin was slightly edematous. Heart was normal.

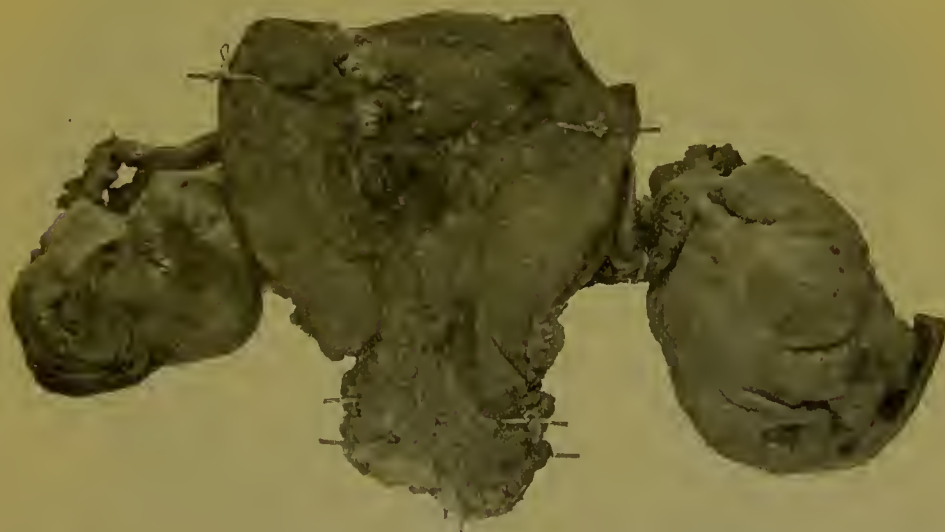


FIG. 1.—From a photograph made for me by my friend Dr. William H. Lockett. Uterus opened through anterior wall, showing characteristic tumor located in the posterior wall near the right cornu. The cystic ovaries are reduced in size because of incisions made at time of removal.

Some râles present in the left lung. There was cough and slight bloody expectoration. Urine negative. Bimanual examination revealed bilateral ovarian cystomata about the size of cocoanuts. The uterus was in the normal position, but considerably enlarged. Its walls, as well as those of the cervix, were very much thickened and congested. The os was patulous and there was a moderate amount of hemorrhage from the uterine cavity. The consistence of the uterus was that of chronic hyperplasia. As I have never found a similar condition so soon after pregnancy, and taking the history of the case into consideration, especially the fact that she had discharged a hydatid mole a few

weeks previously, I suspected that I might possibly be dealing with a deciduoma malignum. I therefore dilated the os sufficiently to enable me to introduce my index finger into the uterine cavity; on exploring which, after removing a few blood clots, I

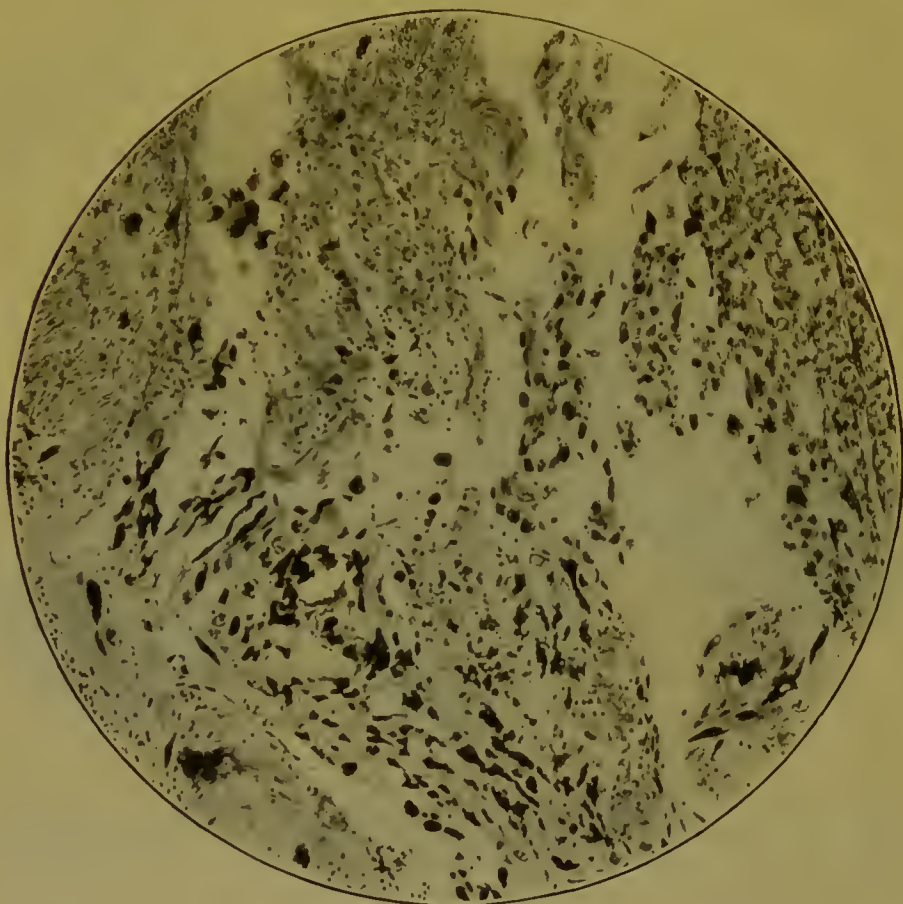


FIG. 2.—Enlarged about 70 diameters. A large venous sinus invaded by the growth. Along the left margin of the picture the fibro-muscular wall of the uterus is seen, invaded by large cells and cell masses derived from the syncytium; below a vestige of the endothelial lining of the sinus can still be made out. Above and to the right, groups of cells are seen having smaller vesicular nuclei of more uniform size, and more distinctly separated from one another, showing the characteristics of the cells of the Langhans layer, or inner layer of the chorionic epithelium. In the lower half of the picture masses of syncytium, presenting the characteristic deeply chromatic nuclei and vacuoles, are well shown.

found the endometrium to be smooth and normal throughout its entire extent, with this exception: on the posterior wall near the right cornu was a small elevated nodule; it was so intimately connected with the endometrium and the uterine wall that it ap-

peared to be a slight projection of the uterine muscularis. It could not be separated nor lifted up from the endometrium by the finger nail, as is the case with an adherent placenta. It was soft, friable, spongy, and bled freely on touch. On manipulation the finger easily broke through its apex and penetrated the uterine wall to almost the peritoneal surface.

The history of the patient and general condition was certainly

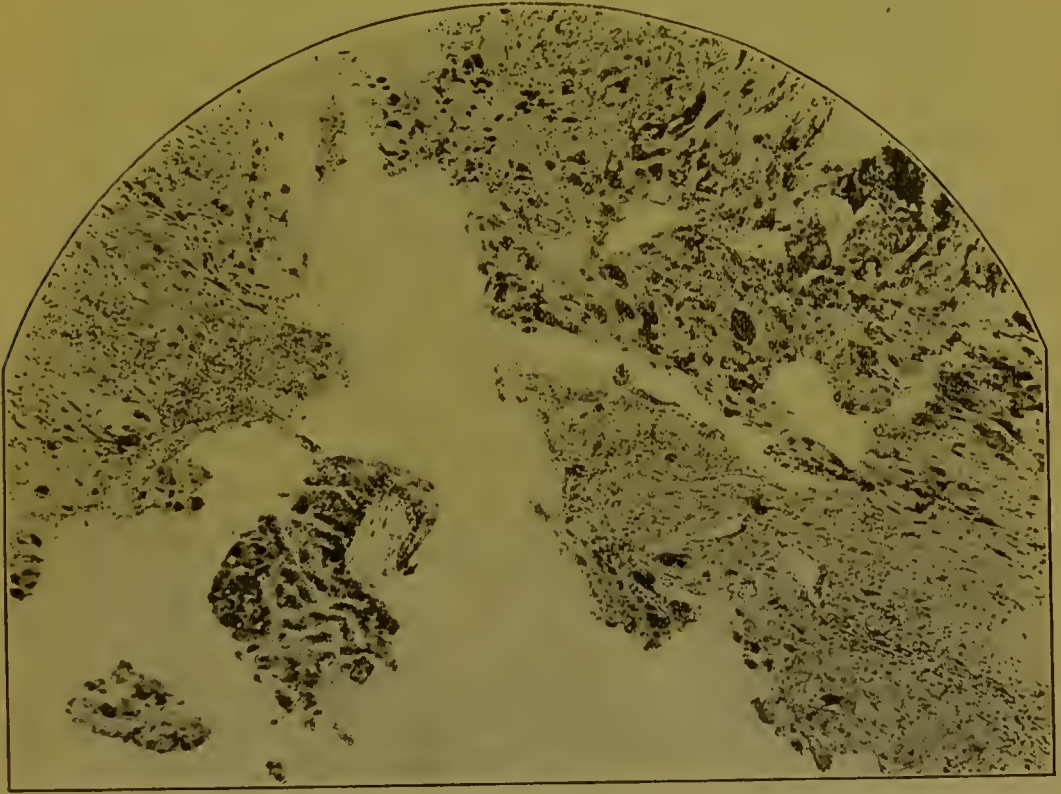


FIG. 3.—Enlarged about 70 diameters. Section taken from the surface of the growth. In the open space below and to the left the tip of a chorionic villus is seen with an exuberant growth of syncytium, whose nuclei are large and densely chromatic. Above and to the right masses of syncytium, whose nuclei are of enormous size and densely chromatic, are seen invading the fibromuscular wall of the uterus, shown in the lower right and upper left portions of the picture. In the muscle wall hyaline degeneration of its cells about the large invading cells is seen; also areas of infiltration with lymphocytes.

very suspicious, but the presence of the nodule proved the tentative diagnosis of deciduoma malignum absolutely correct. The only other conditions to be considered were: (1) an adherent portion of the placenta, which I excluded because of the intimate connection of the nodule with the uterine wall, there being at no point the slightest line of demarcation between them: (2) a partial perforation of the uterine wall, made at one of the pre-

vious eurettings—in that ease the base and edges of the uterine wound would consist of granulation tissue; (3) the soft, spongy, and friable condition of the tumor and its tendency to bleed excluded a small projecting fibroid.

I advised hysterectomy as soon as the consent of the patient and her husband could be obtained, without waiting for a microscopic examination. The next day, under ether anesthesia, in the presence of Drs. Francis Huber, John Rogers, and Louis Friedman, I did an abdominal panhysterectomy, having first separated the cervix through the vagina. The patient made an uneventful recovery. The bloody expectoration and the cough disappeared shortly after the operation.

Microscopical Examination.—The specimen was kindly examined for me by Dr. F. M. Jeffries, Pathologist of the New York Polyclinic, whose report is as follows:

DR. L. J. LADINSKI.

Dear Sir:—The uterus received from you on the 7th of October presents an appearance as though there had been a three-months pregnancy. The cavity is dilated to the extent of receiving a finger. Upon section the walls at the thickest portion are 2.5 centimetres. From cervix to fundus it is 11.5 centimetres. The greatest antero-posterior diameter is 6 centimetres. On the posterior wall, midway between the internal os and the opening of the right tube, is a growth, the size of a filbert, projecting into the cavity. This growth is deep red and bluish in color, is torn and ragged, but portions of its surface still intact lead one to assume that it was originally smooth over the entire surface. Its present condition would suggest that a curette had been used. The projecting portion of the growth is 1.6 centimetres thick.

A perpendicular section was taken through the centre of the nodule and extending into the uterine wall so as to include that portion which contained the penetrating neoplasm. This permitted measuring the deeper portion so far as its extent is apparent to the unaided eye. It was found, however, that microscopically the process was more extensive. The projecting portion extends 1.5 centimetres and internal penetration is equally distant. The intramural portion is 0.4 centimetre at the surface. By comparison of these measurements it will be seen that the growth penetrated to about half the thickness of the uterine wall.

As a result of a microscopic examination your diagnosis of deciduoma malignum is positively confirmed.

Microscopically we have here an exceedingly interesting condition—doubly interesting, not only because of its abnormalities, but because of the possibility of its throwing some light upon the not thoroughly understood question of the nature of relationship between maternal and embryonic structures under normal conditions.

In the free portion of the growth are placental, embryonic, and decidual structures very much as in normal conditions, but with an increased growth of the syncytium—that mass of protoplasm containing free nuclei which constitutes the outer coat of the chorionic villi, the nature of which is yet to be determined.

It is within the uterine wall that the most remarkable conditions exist. In all the area of invasion there are large and small masses of syncytium, and even cells of the layer of Langhans—the cells next the connective-tissue structures of the villi and immediately beneath the syncytium. Here and there masses of these structures are seen occupying venous and in some instances probably lymphatic channels. Still deeper in the uterine substance smaller groups and isolated masses of these structures are to be found. With the hematoxylin and eosin stain the protoplasm of the syncytium partakes of the eosin dye, and the nuclei, which vary widely in shape and size, of the hematoxylin to such an extent as to be nearly black.

The cells of the Langhans structures are of even size, their protoplasm reacts sparingly to the eosin, and their nuclei are pale blue with the chromatin markings quite distinct.

In the uterine structures about the neoplasm there is a small-celled infiltration and other evidences of secondary inflammation.

Yours truly,

F. M. JEFFRIES.

The specimen was also examined by Dr. Otto H. Schultze, of Cornell Medical College, to whom I am indebted for the excellent description of the sections shown in Figs. 2 and 3, reproduced from photographs kindly made for him by Dr. B. H. Buxton, of Cornell Medical College.

The following letter from J. Whitridge Williams, of Baltimore, is of interest in this connection:

DR. OTTO H. SCHULTZE, *New York, N. Y.*

My dear Dr. Schultze:—Many thanks for the slides from the case of deciduoma concerning which Dr. Ladinski wrote me. I examined them this morning and agree with you that the specimen is a typical example of deciduoma, in whose formation both syncytium and Langhans cells take part. I regret extremely that it will be out of the question for me to be in New York when the discussion upon this subject will occur.

Please convey my thanks to Dr. Ladinski for his courtesy, and with special thanks to you for the sections, I am,

Yours sincerely,

J. WHITRIDGE WILLIAMS.

I have been able to collect from the literature of the world on the subject the histories of 132 authentic cases, many of which unfortunately have been but casually observed and very loosely

and indefinitely reported. This is especially true of the earlier cases. Of this number 10 have been reported in this country. They are the cases of: (1) Whitridge Williams,⁵⁴ in 1894; (2) Freeborn,⁶⁶ in 1894; (3) Bacon,⁵⁵ from Chiari's clinic in Prague in 1895; (4) Boldt, in 1895; (5) Otto Schultze, in 1896; (6) Boldt,⁵⁰ in 1898; (7) McFarland,¹⁰⁵ in 1900; (8) McDonald,¹¹⁰ in 1901; (9) Brothers¹¹⁹ from Boldt's clinic, in 1901; (10) my own case. Nine have been observed in England, and the remainder have been reported in Germany, with the exception of a few scattered cases in Italy, Holland, Switzerland, Russia, and France.

Etiology.—Pregnancy is an absolute concomitant or precursory condition of deciduoma malignum. Pregnancy in some form or other preceded the disease in all cases recorded, with only one exception, the case of Paviot,⁴² and that is a doubtful one. No case is on record where the disease showed itself outside the parturient age.

In 128 cases in which the nature of pregnancy was recorded, 51 cases followed hydatid-mole pregnancy, 42 followed abortion, 28 followed labor at term, 4 followed premature labor, and 3 tubal pregnancy. In 40 per cent of the cases, then, the disease followed mole pregnancy. It is, therefore, important to consider the relation of hydatid-mole pregnancy to this growth. Unfortunately on this subject there is also a difference of opinion among pathologists. The majority of observers agree with Marchand,⁸ who was the first to show that hydatid mole is not a true myxoma of chorionic villi, as was claimed by Virchow, but is due to an increased growth of the syncytium and a proliferation of Langhans cells, which produce a mechanical dropsy of the stroma of the chorionic villi; but whether the mole is the result of pathological changes in the ovum or in the uterus cannot be determined in view of our present knowledge.

Chalezky²⁴ is inclined to believe that the death of the embryo is the cause, the chorion receiving in consequence the nutrition intended for the fetus. Marchand,⁸ however, does not agree with this view, on the ground that, if this were the correct theory, mole pregnancy would occur more frequently.

Fränkel²⁵ believes that, owing to the fact that hydatid moles were complicated with bilateral ovarian cystoma in a number of cases, it would tend to prove the ovigenous origin of hydatid mole. This condition was noted in 8 of the cases in addition to my own case.

From a microscopical study of 8 hydatid moles, three cases of which were followed by deciduoma malignum, Neumann²⁶ concludes that the hydatid mole is not always a benign growth. He found in the moles which were followed by malignancy remarkable histological changes which were not observed in ordinary moles. In the malignant cases syncytial cells were found in the stroma of the villi and there was an abnormal proliferation of the cell-layer of Langhans. He therefore urges that every mole should be examined microscopically, and if an atypical growth of epithelial cells be found there is every reason to expect malignant degeneration, and hysterectomy should be done, in spite of the fact that the scrapings from the uterus prove normal on microscopical examination.

Polano,²⁷ on the contrary, does not think that there are any indications in a mole of subsequent malignancy; and L. Piek²⁸ is of the same opinion, since he has found syncytial cells in the stroma of the chorionic villi of mole pregnancies not followed by malignant degeneration.

In analyzing the histories collected, for the purpose of ascertaining whether the duration of the mole pregnancy has any bearing upon subsequent malignant degeneration, I found, in the patients where the time of pregnancy was given, the following:

In 4 cases the duration of the mole pregnancy was 2 months.									
"	8	"	"	"	"	"	"	"	3
"	10	"	"	"	"	"	"	"	4
"	3	"	"	"	"	"	"	"	5
"	5	"	"	"	"	"	"	"	6
"	2	"	"	"	"	"	"	"	7
"	1 case	"	"	"	"	"	"	"	9
<hr/>									
33 cases									

In the 33 cases the average duration was four months.

It will be seen from this table that malignant degeneration occurred most frequently in cases where mole pregnancy terminated in the fourth month, with an average duration in the 33 cases of four months. This corresponds to the average duration of ordinary mole pregnancies, and proves conclusively, as far as these statistics show, that the length of time of the presence of the mole *in utero* has no influence on the disease.

A tabulation of the given ages of 124 patients suffering from deciduoma malignum shows the following:

Between 17 and 20 years	3 cases.
" 20 " 25 "	19 "
" 25 " 30 "	35 "
" 30 " 35 "	24 "
" 35 " 40 "	14 "
" 40 " 45 "	17 "
" 45 " 50 "	8 "
" 50 " 55 "	4 "

Average age in 124 cases, 32 years.

We have here, then, the maximum incidence in the second and third decades, whereas in carcinoma of the uterus the maximum incidence is near the menopause. The average age of these 124 patients is 32 years, which corresponds with that of the generally accepted average age of reproduction, and differs materially from the average age of women suffering from carcinoma of the uterus, which is given by Kruckenberg²⁰ as 54 years.

We must, therefore, conclude, as far as the age incidence would show, that in this disease we are not dealing with the ordinary malignant disease of the uterus, but with malignancy dependent on, and associated with, the reproductive function.

In studying these histories, with a view to determining what influence multiparity has on the causation of this disease, I found in 90 cases where the number of pregnancies was given:

13 of the patients had	1 pregnancy.
21 " " " "	2 pregnancies
12 " " " "	3 "
9 " " " "	4 "
12 " " " "	5 "
8 " " " "	6 "
3 " " " "	7 "
3 " " " "	8 "
5 " " " "	9 "
1 " " " "	10 "
1 " " " "	11 "
1 " " " "	12 "
1 " " " "	13 "

Giving the average number of pregnancies as 4.2 in the 90 patients.

The largest number of cases occurred in women having two or three children, which would tend to show that the number of pregnancies does not predispose to this disease, and the average number of pregnancies (4.2) corresponds to the average number of pregnancies in parturient women in general.

The lapse of time between the appearance of symptoms and the termination of the previous pregnancy may be from a few days to several years; and there is only a slight difference in the time of appearance of the malignant process, whether the disease is preceded by labor at term, abortion, or hydatid-mole pregnancy. The average lapse of time in my collection of cases is eight weeks, seven weeks, and five weeks, after mole pregnancy, abortion, or labor at term respectively, as the annexed table shows:

APPEARANCE OF THE DISEASE AFTER TERMINATION OF PREGNANCY.

	After Mole.	After Abortion.	After Labor at Term.
1 week.....	15 cases	10 cases	9 cases
2 weeks.....	1 case	3 "	0 "
3 ".....	0 cases	1 case	5 "
4 ".....	13 "	12 cases	5 "
5 ".....	1 case	0 "	1 case
6 ".....	2 cases	3 "	0 cases
7 ".....	1 case	0 "	1 case
8 ".....	2 cases	1 case	4 cases
9 ".....	0 "	0 cases	1 case
10 ".....	0 "	0 "	0 cases
12 ".....	1 case	5 "	2 "
16 ".....	1 "	0 "	0 "
6 months.....	4 cases	2 "	1 case
7 ".....	0 "	1 case	0 cases
9 ".....	1 case	0 cases	0 "
10 ".....	1 "	1 case	0 "
20 ".....	1 "	1 "	0 "
	44 cases.	40 cases.	29 cases.
Average.....	8 weeks.	7 weeks.	5 weeks.

Symptomatology.—Hemorrhage is almost invariably present and is usually the first symptom which attracts attention. It appears without any apparent cause and is very characteristic, because of its extreme irregularity as to frequency, duration, and quantity.

It is important to note that the bleeding from deciduoma malignum does not respond to the usual means of treatment. Curettage, for instance, had no effect in controlling the hemorrhage in the large majority of cases, while in a number of cases it was followed by more profuse bleeding. In a few cases it could not be performed because of the alarming hemorrhage caused by the manipulation, and hysterectomy was finally resorted to and the diagnosis made when the uterus was extirpated. The discharge, as a rule, is bright-colored and fluid blood, but in

the advanced stages of the disease it becomes dark and of foul odor. In the intervals of the hemorrhages there usually is a serous discharge.

Pain.—In the histories collected by me pain is referred to but rarely. In my own case pain in the pelvis was distinctly noted, and I am of the opinion, in spite of the fact that it is only mentioned in a few cases, that it certainly was present in a large number of them, if the pain is to be attributed to no other cause than the increased sense of weight and heat in the pelvis due to the enlarged and engorged uterus.

This leads me to the consideration of another sign—namely, enlargement of the uterus. The uterus has been found enlarged in nearly all the cases studied, so much so that in a number there was a suspicion of retained placenta. The statement is usually made, in the histories quoted, that the uterus was soft. I am inclined to believe that sufficient attention has not been paid to this sign. In my patient the consistence of the uterus was very characteristic. It was certainly not soft or doughy, as is the case in subinvolution, nor was it elastic, as is found in incomplete abortion; on the contrary, I regarded the feel of the uterus to be that of a chronic hyperplasia. This was confirmed by an examination of the specimen in my case, which shows a uniformly enlarged uterus with distinctly hypertrophied walls. I venture to say that this distinction will be found of value in the consideration of future cases.

The os is usually patulous. This was found to be true in nearly all the cases.

Anemia; Cachexia.—The anemia of the early stage of the disease is at first attributed to the hemorrhages; later the anemia becomes so profound as to be entirely out of proportion to the amount of blood lost. Still later we have a marked loss of flesh and strength, and, finally, distinct cachexia.

Characteristic Tumor.—The growth is so peculiar and distinctive, especially in the incipient stage, as to make its presence absolutely diagnostic. It begins as one or more minute dark-colored or reddish nodules, and springs from the endometrium either by a broad base or pedicle, and invades and penetrates the uterine muscularis toward the peritoneal surface. It gradually grows in all directions. There is no sharp line of demarcation at its periphery, but the growth appears to be a projection of the uterine wall. It is soft, spongy, friable, and bleeds very profusely on touch. From a benign placental polypus, with

which it might possibly be confounded, the growth can readily be differentiated by the hard feel of the former.

Metastasis.—The characteristic peculiarity of this disease is its marked proneness to early metastasis, the metastatic tumor frequently exceeding the primary one in its growth. The metastatic deposits consist of the same elements as the primary tumors and have been found in the following organs in the order of frequency:

TABLE OF METASTATIC DEPOSITS.

Metastasis in lungs.....	in 47 cases.
“ “ vagina	“ 40 “
“ “ liver	“ 13 “
“ “ spleen	“ 13 “
“ “ kidneys	“ 13 “
“ “ ovaries	“ 10 “
“ “ intestines	“ 8 “
“ “ brain	“ 7 “
“ “ broad ligament.....	“ 5 “
“ “ pleura	“ 4 “
“ “ mesenteric glands.....	“ 3 “
“ “ pancreas	“ 2 “
“ “ heart.....	“ 1 case.
“ “ stomach	“ 1 “
“ “ pelvic lymphatic glands.....	“ 1 “

Metastasis is carried by the circulation in the large majority of cases; in only a few cases has it been transmitted through the lymphatic channels. This was found in the patients of Gebhard⁷¹ and Menge.⁴³

Cough and Expectoration.—Metastasis in the lungs was found at autopsy in 47 of the cases, and, as there were also slight pulmonary symptoms in some of the patients who recovered, we must regard cough and bloody expectoration as prevalent and important symptoms.

Diagnosis.—It seems to me, from a study of the characteristic clinical features of this neoplasm, that there should be little difficulty in arriving at a diagnosis with some degree of certainty in the very large majority of cases.

I wish to emphasize the fact that in this disease, much more so than in incipient carcinoma of the uterus, the microscopical examination should not be solely depended on for a diagnosis; particular attention should be paid to the clinical signs and symptoms.

I do not, however, wish to be understood as underrating in the least the extreme value of a microscopical examination. The

scrapings of the uterus of every patient suffering from suspicious symptoms should invariably be examined microscopically and at the very earliest opportunity, in order to establish or confirm the diagnosis. In the absence of clinical signs and symptoms the microscope may in some cases be the means of detecting the growth, as, for instance, in the patients of Marchand,⁹ Langhans,¹²³ Blumenreich,⁹² Schlagenhauser,⁹⁶ and Schmit,¹⁰⁸ in whom scrapings from the uterus showed a beginning deciduoma malignum, and who recovered after curettage or hysterectomy. In every instance of hydatid-mole pregnancy not only should a histological examination be made for the possible purpose of distinguishing between the benign and malignant mole, but scrapings from the uterus should be examined for malignancy at regular intervals subsequent to the expulsion of the mole.

It is absolutely essential, however, that every patient suffering from uncontrollable bleeding after labor, abortion, or the discharge of a hydatid mole be subjected to one or more digital explorations of the uterine cavity—which, owing to the patulous condition of the os, can easily be accomplished, or, if necessary, instrumental dilatation should be resorted to—for the purpose of ascertaining the presence or absence of the characteristic nodule. When this is present the diagnosis can be made long before the scrapings from the uterine cavity will show malignant degeneration under the microscope. In the cases of Freund,⁶⁹ Marchand,⁹ Krebs,¹⁰⁴ Munod,⁷⁴ and Langhans,¹²³ the microscopic examination of scrapings from the uterus proved negative.

Summary.—The clinical features which should aid us in arriving at a diagnosis are:

1. History of recent parturition or abortion, especially if a hydatid mole has been discharged or placenta retained.

2. Profuse hemorrhage occurring at irregular intervals, without apparent cause, and not amenable to the ordinary means of treatment, and which recur in spite of repeated curettages; the presence of a constant sanguineous discharge during the intervals of hemorrhage.

3. A persistently large and hyperplastic uterus and cervix, with a patulous os.

4. Pain in the pelvis.

5. Anemia, rapid loss of flesh and strength, and cachexia.

6. Characteristic nodule in interior of uterus in the early stage.

7. The presence of metastatic deposits, especially in the vagina and lungs, the latter producing cough and bloody expectoration.

Prognosis.—Deciduoma malignum is the most fatal of all neoplasms because of its very rapid development and exceeding proneness to early metastasis and recurrence. In 124 cases there were records of 51 recoveries and 73 deaths—a mortality of 59 per cent. It must be remembered, however, that the number of recoveries given occurred in patients in whom only the immediate result of the treatment was recorded, and that the mortality list would probably be much higher if there were not an absolute lack of data to base any calculation in reference to recurrences.

The causes of death in these cases were:

1. Metastasis in other organs, in 47 cases.
2. Hemorrhage and exhaustion, in 20 cases.
3. Perforation of the uterus and uterine hemorrhage, in 4 cases.
4. Operation, shock, and sepsis, in 2 cases.

The lapse of time between the termination of the pregnancy and death was as follows:

	After Mole.	After Abortion.	After Labor at Term.
Shortest time.....	3 days	2 weeks	1 month
Longest time.....	2 years	1½ years	9 months
Average time.....	6 months	5 months	4 “

as is shown by the appended detailed table:

DEATH OCCURRED AFTER TERMINATION OF PREGNANCY.

	After Mole.	After Abortion.	After Labor at Term.
1 month.....	5 cases	4 cases	2 cases
2 months.....	1 case	4 “	5 “
3 “	3 cases	1 case	3 “
4 “	6 “	2 cases	2 “
5 “	1 case	2 “	1 case
6 “	2 cases	4 “	8 cases
7 “	0 “	1 case	0 “
8 “	2 “	2 cases	0 “
9 “	0 “	3 “	2 “
10 “	0 “	1 case	0 “
11 “	0 “	0 cases	0 “
12 “	2 “	0 “	0 “
1½ years.....	1 case	1 case	0 “
2 “	2 cases	0 cases	0 “
	—	—	—
	25 “	25 “	23 “

Operations.—On 66 patients a radical operation was performed as follows:

Vaginal hysterectomy, on 57 cases; abdominal hysterectomy, on 6 cases; laparatomy, on 3 cases; total, 66 cases. Of these 50 recovered.

What the comparatively early recognition and prompt operation in recent years have done to improve the prognosis in this disease can readily be seen by comparing the mortality rate of 73 per cent in the 52 cases collected by Dorland³⁰ and published in 1897 with the mortality of 59 per cent in my collection of cases.

Treatment.—Considering the rapid progress of the disease, the treatment should consist of complete extirpation of the uterus and vaginal metastasis, if present, as soon as the diagnosis is made from the clinical signs or histological examination. Any measure short of this will only aggravate the condition. This should be resorted to even in the suspected presence of metastatic deposits in other parts of the body, for in a few cases the secondary deposits disappeared after the primary tumor was removed—as, for instance, in the cases of Peham¹⁰⁷ and Gottschalk.³ This is ascribed to the theory that the migrated epithelial cells of the chorion can live and proliferate only in fluid blood, and perish or are destroyed in extravasated blood.

In every case of hydatid-mole pregnancy the uterus should be emptied as soon as the character of the pregnancy is ascertained. Should a microscopical examination of the cysts show an atypical proliferation of cells, or scrapings from the uterus exhibit the slightest indication of malignant degeneration, I think I am within the limits of conservatism when I say that I agree with Neumann²⁶ that the uterus should be extirpated.

As the only hope of cure in this disease depends on the early recognition and prompt surgical treatment, the uterus of every patient whose history is in the least suspicious should be subjected to a curettage for microscopical examination, and to a thorough digital exploration, at the earliest possible opportunity.

Appended is a collation of 132 histories of authentic cases. The first 51 cases comprise the list collected by Dorland,³⁰ which, in order to avoid a repetition of labor, are quoted with some corrections; for kind assistance in a diligent search of the literature for the others I beg to express my indebtedness to Drs. Louis Friedman and H. J. Blumensohn.

1. Chiari.³¹ Patient aged 24 years. Had a number of hemorrhages and constant sanguineous discharge following a labor at term. Death occurred, without operation, six months after the birth of a child. The autopsy showed the inner surface of the uterus irregular and granular, with small, circumscribed nodules in the wall, and metastatic deposits in the broad ligaments.

2. Chiari.³¹ Patient aged 23 years. Hemorrhage began four weeks after the birth of a child at term. Soon after developed hemoptysis, and died, without operation, six months after the labor. The autopsy showed irregular masses in the uterine cavity and metastasis in the lungs.

3. Chiari.³¹ Patient aged 42 years. Hemorrhage occurred six days after a premature labor at the sixth month. Hemoptysis was shortly noticed, and the patient died, without operation, six months after the labor. The autopsy revealed an irregular mass on the anterior wall of the uterus and small, circumscribed nodules in the wall. There were also metastatic deposits in the lungs, ovary, vagina, and pelvic lymphatic glands.

4. Jacubasch.³² Patient aged 26 years. Had had previously two normal pregnancies. In January, 1880, she had a four-months abortion, and four months later died from an intraperitoneal hemorrhage, the bleeding being due to the rupture of a bluish-red nodule, the size of a hazelnut, situated on the outer surface of the posterior wall of the uterus. In addition there were found a tumor of similar character, five by six centimetres in size, in the fundus uteri, and six other smaller nodules. No metastases were noted, and no microscopic examination of the growth was made.

5. Tibaldi.³³ Patient aged 31 years. Had had four previous pregnancies. The delivery of the fifth child was followed by continuous hemorrhages, resulting shortly in death. The autopsy showed a mass in the uterus presenting characteristic features, with metastatic deposits in the brain, lungs, kidneys, colon, and ovary.

6. Gutténplan.³⁴ Patient aged 28 years. Had had seven previous pregnancies. Three months after the discharge of a hydatidiform mole she began to suffer from hemorrhages, which were followed by hemoptysis and early death. The autopsy revealed a characteristic growth in the uterus with metastases in the lungs and vagina.

7. H. Meyer.³⁵ Patient aged 55 years. Had had three children, the last ten years previously. Six months after expulsion of a hydatidiform mole she began to suffer from hemorrhages, and died three months later of anemia. The autopsy was incomplete and metastases were not noted. The uterus was considerably enlarged, and its interior presented an irregular, nodular, and worm-eaten appearance. Scattered through its walls were numerous round nodules, which varied in size from a grain of sand to a lentil.

8. Sanger.¹ Patient aged 23 years. Aborted in the eighth

week with retention of the product of conception, as evidenced by profuse hemorrhage followed by a fetid discharge lasting for three weeks. To relieve the septic condition the uterus was dilated and curetted. The fever and fetid discharge ceased, but the pulse remained above 100 and convalescence was delayed. There seemed to be an exudation to the left of the uterus, and the uterus itself was increased in size. Later a distinct tumor appeared in the right iliac fossa, which was supposed to be an abscess. This was incised and a mass of fungating tissue discovered, but no pus. The iliac bone was found, rough and denuded, at the bottom of the cavity, and the case was regarded as one of tuberculous periostitis, although no bacilli were found. The patient was cachectic and suffered with dyspnea. She died seven months after the onset of her symptoms. Autopsy revealed four large, soft, spongy, reddish tumors in the uterine wall, the nodules varying in size from a walnut to a large apple. The uterine mucosa was smooth. Metastases were found in the right iliac fossa, lungs, diaphragm, and tenth rib. The microscope showed a hemorrhagic tumor composed of groups of large round cells with large nuclei, resembling those of the decidua.

9. Pfeiffer.² Patient aged 35 years. Had had four normal pregnancies and one abortion. In December, 1888, she expelled a hydatidiform mole. In September, 1889, a profuse hemorrhage occurred. The hemorrhage then persisted with hemoptysis until her death on February 4, 1890. The autopsy revealed a characteristic growth in the uterine fundus and left wall, with metastases in the vagina and lungs.

10. Pestalozza.⁴ Patient aged 25 years. Had had one previous pregnancy. She aborted February 1, 1888, after which hemorrhages persisted until the time of her death, August 1, 1888. The autopsy revealed a characteristic growth in the fundus uteri and anterior wall, with metastases in the vagina, broad ligaments, and lungs.

11. Pestalozza.⁴ Patient aged 33 years. Had had five normal pregnancies previously. Hemorrhage began a little over a month prior to her death, and the autopsy revealed a characteristic growth in the anterior wall of the uterus, with metastases in the vagina, broad ligament, and lungs.

12. Pestalozza.⁴ Patient aged 45 years. Had had previously nine normal pregnancies. On December 26, 1889, she expelled a hydatidiform mole, after which she had irregular hemorrhages until her death, March 30, 1891. The autopsy showed nodules in the anterior and posterior walls of the uterus, with metastases in the lungs.

13. Pestalozza.⁴ Patient aged 32 years. Had had previously seven normal pregnancies. Hemorrhages occurred after labor at term, April 17, 1894, and persisted until her death in October, 1894. No autopsy was made. A characteristic growth was found in the uterus with metastases in the vagina.

14. Pestalozza.⁴ Patient aged 22 years. Had had one pregnancy at term and one abortion. In February, 1894, she expelled a hydatidiform mole, after which hemorrhages occurred at irregular intervals. Vaginal hysterectomy was performed May 14, 1894; the patient recovered and remained well one year later. There was a characteristic growth in the uterus. No metastases were discovered.

15. Pestalozza.⁴ Patient aged 44 years. Had had twelve previous pregnancies. On October 4, 1894, the patient expelled a hydatidiform mole, after which hemorrhages persisted. Vaginal hysterectomy was performed October 13, 1894, the patient recovering and remaining well one year later. A characteristic growth was found in the uterus. There were no metastases.

16. P. Muller.³⁶ Patient aged 30 years. Had had six previous pregnancies. In the seventh pregnancy she induced abortion at the fifth month. Some weeks later masses could be felt in the uterus, and hemorrhages occurred. The uterus was everted, cystic tumors shortly appeared in the posterior vaginal wall, and the patient died five months after the abortion. The autopsy revealed a characteristic growth in the uterus and metastases in the vagina and gluteal region.

17. Gottschalk.³ Patient aged 42 years. Had had two children and three abortions. After the last abortion, at the third month, profuse hemorrhage occurred; the uterus was dilated, and a large amount of what appeared to be placental tissue was removed. Gottschalk then saw the case and removed with his finger from the uterine cavity about 150 cubic centimetres of red tumor masses. The hemorrhages persisting, on August 16, 1892, Gottschalk removed the uterus per vaginam. It was considerably enlarged, and in its upper right-hand margin, and involving the fundus and the adjoining anterior and posterior walls, was a large, jagged, villous growth, of a reddish color, which had almost perforated the uterine wall. The woman remained well for six months, but died March 11, 1893. Autopsy revealed metastases in the pelvis, lungs, spleen, and right kidney.

18. Lebensbaum.³⁷ Patient aged 27 years. Had had three previous pregnancies. Her fourth labor occurred at term, and hemorrhage occurred five weeks later, lasting eleven days. In spite of curettage the hemorrhages increased and were associated with rigors. Vaginal hysterectomy was performed July 3, 1891, but the patient died in six days. A characteristic growth was found in the uterus and metastases in the vaginal wall.

19. Schmohl.⁵ Hemorrhage began twelve weeks after a labor at term and persisted until the patient's death six months later. The characteristic growth was found in the uterus and metastases in the lungs.

20. Köttnitz.³⁸ Patient aged 25 years. Had had two previous normal pregnancies. After a third normal labor hemorrhages occurred at short intervals, associated with fever, rigors, and delirium. The patient died in ten weeks, and the autopsy

revealed a characteristic growth in the uterus with metastases in the vagina and lungs.

21. Löhlein.³⁹ Patient aged 47 years. Had had seven previous pregnancies. In May, 1890, she expelled a hydatidiform mole. There was a cessation of the menses in the summer of 1891; then hemorrhages and a discharge after February, 1892. Vaginal hysterectomy was performed August 8, 1892, the patient recovering and remaining well until January 7, 1893, when she was last seen. The characteristic growth was found in the uterus. There were no metastases.

22. L. Fränkel.⁴⁰ Patient aged 25 years. In July, 1892, expelled a hydatidiform mole in the third month of pregnancy. Twenty months later, in February, 1894, she returned to the clinic in a very poor condition, having a markedly enlarged uterus with tumor masses on either side of it. She complained of pain and passed bloody urine. The tumors on either side of the uterus were removed by abdominal section and were found to be small ovarian cystomata. The uterus was stitched to the abdominal incision and opened, when it was found to be filled with soft, reddish, placenta-like masses. The patient subsequently suffered severely with cough and headache, and died three months later, June 9, 1894. A partial autopsy was made. A soft, red, spongy tumor was found arising from the abdominal incision. The uterine wall was ulcerated through and its cavity communicated with others in the vagina. The bladder and spleen also showed metastases, and the clinical symptoms indicated metastatic formations in the lungs and brain, which organs, however, were not examined.

23. R. Klien.⁴¹ Patient aged 27 years. Had had two children. One abortion in August, 1892. The menses were suppressed in November, 1892; flooding occurred January 26, 1893, and on March 3 a large vesicular mole was expelled. The flooding and pain continuing, the uterus was curetted on May 15, a left parametritis and salpingitis following. In September the patient became very ill with rigors, fever, and pain. Examination showed enlargement of the uterus. On November 7, 1893, a fatal hemorrhage occurred. Autopsy revealed a characteristic growth in the body and cervix of the uterus, with metastases in the vagina, pelvis, and both lungs.

24. Paviot.⁴² Patient aged 48 years. Had suffered with uterine hemorrhage for thirteen years and had not been pregnant for twenty years. She died finally of anemia, and the autopsy revealed the uterus as large as the fetal head, its left and inferior portion being made up of an adenomatous growth, while its right and superior portion was composed of dense and somewhat fragile and granular tissue. Metastases were found in the peritoneal cavity, mesenteric and prevertebral glands, lungs, liver, and kidneys.

25. Menge.⁴³ Patient aged 35 years. Had had eight children and one abortion. On December 28, 1892, she was delivered at

the sixth month of a large hydatidiform mole. Six months later metrorrhagia set in, and on dilating the uterus a mass the size of a bean was detected in the anterior uterine wall. This was removed by the curette in July. On August 3 a fresh hemorrhage occurred, and, after plugging and the use of the curette, some soft masses were removed, which, under the microscope, revealed cells of the decidual type. On August 11 vaginal hysterectomy was performed. Metastatic deposits were found in the vaginal vault, and it was impossible to remove the diseased parts without fouling the peritoneum. November 21, three and a half months after the operation, small metastatic deposits were detected in the vaginal wall close to the vulvar orifice. They grew very rapidly, sloughing and causing fetor and edema of the labia, and the patient died six months after the operation and thirteen months after the expulsion of the mole.

26. Hartmann and Toupet.⁴⁴ Patient aged 25 years. Had had a child eighteen months before admission into the hospital. Menstruation occurred during the last six months of lactation; the periods then ceased for three months after a very free hemorrhage; then for three months there was an almost continuous oozing of blood, terminating in another profuse bleeding which was associated with fever and rigors and which lasted a fortnight. The uterus was dilated and curetted, but the hemorrhage persisted for a month, at which time the patient died during a severe exacerbation of the flow accompanying the expulsion of a mass resembling placental tissue, eight months after the appearance of the first symptom. The autopsy was incomplete. The left angle of the uterus and its posterior wall were occupied by a blackish mass that resembled placental tissue, and two nodules the size of a hazelnut were situated in the fundus and posterior wall; they extended through the entire thickness of the uterine wall, were grayish white in color, soft, and continuous with placenta-like masses that projected from the interior of the uterus. In addition the uterine wall was studded with many similar but smaller nodules, all of which were developed within veins. No metastases were found in the other abdominal viscera.

27. Jeannel.⁴⁵ Patient aged 26 years. Had had an abortion in January, 1893, and was then regular until March, 1894, when hemorrhages began and persisted until a vaginal hysterectomy was performed, May 3, 1894. The patient recovered and was well when seen December 20, 1894. A characteristic growth was found in the uterus.

28. Nové-Josserand and Lacroix.⁴⁶ Patient aged 24 years. Had had two children, the last two and one-half years before. In March, 1892, she expelled a hydatidiform mole, and one month later began to have hemorrhage from the womb, which was then explored digitally. At one point in the anterior wall near the fundus the uterine tissue was very soft, and some fragments removed by the finger nail revealed, when examined microscopically, a large-celled infiltration of the uterine muscle.

Bleeding persisting, a vaginal hysterectomy was performed July 12, 1893, the patient recovering and remaining well three months later. The uterus was one-third larger than normal; in its posterior wall was a pedunculated, reddish-brown, soft tumor, full of blood, and the size of a nut. Similar growths were found deep in the muscular tissue of the anterior wall. On microscopic examination these tumors were seen to consist of large cells, partly resembling in their arrangement epithelial carcinoma, partly sarcoma. The cells penetrated into the interspaces of the smooth muscular fibres, into the arteries, veins, and lymph vessels, and developed under the endothelium. No other metastases were found.

29. Marchand.⁸ Patient aged 34 years. Had had nine children, the last November 26, 1893. Three weeks after the birth of this child uterine hemorrhages occurred, and persisted until a vaginal hysterectomy was performed on April 20, 1894. The patient made a good recovery and was well when seen in the following October. A characteristic growth was found in the fundus uteri.

30. Schauta.⁴⁷ Patient aged 29 years. Had had four previous pregnancies. During her fifth pregnancy she suffered from repeated bleedings, which became free in the seventh month of gestation and persisted over a fortnight. A hydatidiform mole was then removed; but hemorrhages with a free aqueous discharge persisting, the uterus was exposed six weeks later and soft masses found projecting into the cavity. The uterine body was soft and enlarged, and there was also a tough, dark blue swelling on the posterior vaginal wall, the size of a nut. There were two separate pelvic tumors. Microscopic examination of the scrapings proved the growth to be a deciduo-sarcoma, and vaginal hysterectomy was performed on November 21, 1894, the patient recovering and remaining well one and a half years later. The ovaries were found to be considerably enlarged and were also removed, and the vaginal deposit was excised. Not only the endometrium but also the vaginal deposit and the connective tissue of the ovaries contained new growths resembling decidual tissue.

31. Superno.⁴⁸ Patient aged 32 years. Had had five previous pregnancies, the last child being born ten months before. In the third month of the sixth pregnancy the patient expelled a hydatidiform mole, which was followed by hemorrhage and pain. A vaginal hysterectomy was performed September 14, 1892, the patient recovering and remaining well one year later. A characteristic growth was found in the uterus.

32. Resinelli.⁴⁹ Patient aged 28 years, who had had three normal labors, the last on March 28, 1890. In fourth pregnancy, aborted in the third month during an attack of influenza. Three months later, November, 1891, a small tumor appeared in the vestibule of the vagina, and a pelvic examination revealed an infecting sarcoma of the uterus with metastases in the vagina

and abdominal viscera. The patient died March 14, 1892, and the autopsy revealed a characteristic growth in the uterine at the origin of the right tube, with metastases in the lungs, face, vaginal wall, and liver.

33. Boldt.⁵⁰ Patient aged 33 years. Aborted at the fourth month, shortly after which a sanguineous discharge again occurred. Her physician curetted the uterus. Four months later the uterus was greatly enlarged and the patient profoundly anemic. A microscopic examination of the debris showed the characteristic decidual cells. A pleurisy with effusion developed and the patient died a few months later. No autopsy was permitted.

34. Kuppenheim.⁵¹ Patient aged 33 years. Had had five previous pregnancies, the last in June, 1894. Hemorrhage occurred three weeks after the birth of the child and persisted until a vaginal hysterectomy was performed, August 20, 1894. The patient recovered and remained well in June, 1895. A characteristic growth was found in the uterus.

35. Tannen.⁵² Patient aged 23 years. Had had two former pregnancies. The third pregnancy resulted in a hydatidiform mole, which was discharged in July, 1893. The patient was then regular and well until January, 1894, when hemorrhages began and persisted until June 30, when a vaginal hysterectomy was performed. The woman recovered and was well nine months later. A characteristic growth was found in the uterine wall.

36. Ahlfeld.⁵³ Patient aged 17 years, whose menses had been regular until Christmas, 1893, after which they became more profuse than usual, so that in April, 1894, she was obliged to consult a physician on account of profuse hemorrhages which had lasted for three weeks. After rest in bed they ceased, and she was well until June, 1894, when she suffered another profuse hemorrhage, which came from a soft, reddish tumor, the size of a walnut, which was situated on the lower portion of the anterior vaginal wall. This was removed and the uterus curetted, the scrapings showing nothing abnormal. The vaginal growth recurred with great rapidity, and soon another appeared beside it. At the same time a tense tumor manifested itself above the symphysis. July 4 she developed the symptoms of peritonitis, and during an abdominal section died. The autopsy showed the uterine to be perfectly normal, and that the growth arose from the left tube, which had been the seat of a tubal pregnancy. Besides the metastases in the vagina there were numerous small placenta-like thrombi in the lungs, but none in other organs.

37. Williams.⁵⁴ Negress aged 35 years. Had had five pregnancies, the third ending in a miscarriage at the sixth month. On April 15, 1894, she was delivered of a dead child and suffered from postpartum hemorrhage and septicemia. Two weeks after delivery a tumor appeared on the right labium majus and one week later had attained the size of a walnut. It soon became

gangrenous and ulcerated on the surface. In another week it was as large as a hen's egg. The patient died July 12, 1894, three months after labor. At the autopsy there was found a smaller mass on the left lateral vaginal wall, and on the posterior wall of the uterus a mass projected into the uterine cavity, while smaller tumors, the size of almonds, were found in the fundus. A similar growth the size of a hazelnut was found in the hilum of the left ovary, and numerous metastatic deposits in the lungs, spleen, liver, and kidneys.

38. Bacon.⁵⁵ Patient aged 48 years. Had had six children and two abortions. In December, 1892, in the ninth month of her ninth pregnancy, she expelled a hydatidiform mole. Five weeks later she began to have hemorrhages, which recurred frequently; and she died in hospital June 25, 1893, having presented the following series of symptoms: recurrent metrorrhagia, secondary anemia, bilateral pleuro-pneumonia, endocarditis, septicemia, bedsores, edema of the legs. The autopsy revealed a characteristic tumor in the uterus, with secondary deposits in the right broad ligament and the lungs.

39. Champneys.⁵⁶ Patient aged 18 years. Had had one child in May, 1890. Became pregnant again in September, 1890, and on March 22, 1891, had a profuse discharge of pale-red, clear fluid containing clots and bladder-like bodies. About four pints escaped. The discharge continued in smaller quantities until April 8. On April 9 she suffered a profuse hemorrhage and discharged a hydatidiform mole, after which she had septicemia. Was curetted on April 13, and left the hospital on May 22. Hemorrhage returned July 20, accompanied by an offensive discharge and abdominal pains, with fever and rigors. She was anemic and emaciated, and gradually failed until her death, December 12, 1891. Autopsy revealed a sloughing condition of the uterine walls, with metastases in the lungs.

40. Runge.⁵⁷ Patient aged 44 years, a multipara, whose last child was born three years before. She had had profuse hemorrhages for five months, after which she passed a hydatidiform mole. The hemorrhages persisting, abdominal hysterectomy was performed October 28, 1895, the patient recovering and remaining well three months later. A characteristic growth was found in the uterus.

41. Appelstedt and Aschoff.⁵⁸ Patient aged 33 years. Had had two children. On October 4, 1894, she suffered an abortion at the fourth month, the fetus being macerated. Profuse menstruation occurred in December, 1894, and January, 1895, with a bloody discharge between. A "polypus" was then removed, and the patient discharged in February. She was readmitted in May with a bloody discharge, and a vaginal hysterectomy was performed May 24, 1895, the patient dying, however, June 19. Autopsy showed a characteristic growth in the body of the uterus, extending to within a few millimetres of the peritoneum, with metastases in the lungs, stomach, and pancreas.

42. Appelstedt and Aschoff.⁵⁸ Patient aged 42 years. Had had two children, one in 1882 and the second in 1886. She expelled a hydatidiform mole March 28, 1895, and eight days later developed a painful swelling in the left labium majus. On incising this a metastatic hydatidiform mole was found. The patient experienced repeated hemorrhages and died July 25, 1895. Autopsy revealed a characteristic growth in the uterus, with metastases in the paravaginal cellular tissue, left labium, lungs, and spleen.

43. Lönnberg and Mannheimer.⁵⁹ Patient aged 38 years, a multipara. Was delivered in November by forceps at term. Two months later, metrorrhagia having continued for four weeks, an examination was made and a mass of fibrin discovered. In January the cervix was dilated and a tumor the size of an almond removed from the anterior uterine wall by means of the curette. The bleeding grew worse, and masses of decidual substance were expelled. Emaciation became marked and the patient died six months after delivery. A characteristic growth was found in the uterus, with metastatic deposits in the lungs, liver, spleen, kidneys, and abdominal lymphatics.

44. Lönnberg and Mannheimer.⁵⁹ Patient aged 42 years. Had had two children. The third pregnancy ended at the fourth month on November 19, 1893, a vesicular mole being expelled. Seven weeks later metrorrhagia set in and continued for nearly two years. The body of the uterus was as large as a fist, and metastatic deposits were found in the vagina. The uterus was removed October 18, 1895, and on October 30 the vaginal metastases were excised. The patient recovered and was in good health April 1, 1896. A characteristic growth was found in the uterus.

45. Morison.⁶⁰ Patient aged 35 years. Had had nine children. Hemorrhages occurred nine weeks after the last labor, and persisted until a vaginal hysterectomy was performed, December 11, 1894. The patient died July 11, 1895. A characteristic growth was found in the uterus.

46. Spencer.⁷ Patient aged 27 years. Had had one child seven years before. Three weeks after a normal labor with a living child, hemorrhage occurred and masses of growth were discharged. The patient died ten weeks after labor, and the autopsy showed a characteristic growth in the body and cervix uteri and metastases in the lung.

47. Laver and Wilkinson.⁶¹ Patient aged 21 years. Had had one child three years before. In May, 1892, she became pregnant a second time, but aborted at the end of the third month, and for five months suffered from a constant slight bleeding. Flooding then occurred at each succeeding menstrual period, and she was admitted to the hospital June 8, 1893, in an anemic condition. August 11 the uterus was curetted, the hemorrhage ceasing for three weeks and then returning. On October 4 vaginal hysterectomy was performed. The patient became septic, and on November 9 developed fever and rigors, and a dulness

over the base of the right lung, which soon extended to the entire back of that lung. Dyspnea was marked, and the patient died December 15, 1893, with all of the signs of recurrence of the disease in the lungs. No autopsy was allowed.

48. Leopold.⁶² Patient delivered June 25, 1895. The menses reappeared three months later, and from that time on she flowed irregularly every two weeks and suffered from severe abdominal pain, which was ultimately followed by collapse. Examination showed the uterus pushed to the right side and enlarged, with a doughy mass behind in Douglas' cul-de-sac. On opening the abdomen, June, 1896, two litres of dark fluid blood escaped. Both tubes were normal, but the anterior wall of the fundus uteri showed from six to eight dark-bluish protuberances, one of which had ruptured and was the source of the bleeding. The uterus was removed. The patient rallied under the use of hypodermoclysis. The uterus was found to contain a soft mass which had grown into and penetrated the muscularis. No microscopic examination was made.

49. Neumann.⁶³ Patient aged 51 years. Had had twelve children. In January, 1893, suppression of the menses occurred, and in February the woman commenced to bleed, the hemorrhage being more or less constant from the middle of March until April 12. On May 6 a hydatidiform mole was removed, and the hemorrhage which followed being uncontrollable, the uterus was removed by the abdominal operation. The patient, however, died May 9 of right lobular pneumonia, peritonitis, and left pyothorax. A microscopic examination of the uterine contents showed a beginning malignant degeneration of the chorionic villi. There were probably metastases in the lungs.

50. K. Aezel.⁶⁴ Patient aged 22 years. Had aborted twice, and nine months before her death gave birth to a child, which died in three months' time. Uncontrollable bleeding from the genitalia followed the confinement, associated with marked pulmonary symptoms, and the patient died in August, 1890. Autopsy revealed a friable tumor in the fundus uteri, and the cervix, vagina, and lungs were the seats of metastases.

51. Coek.⁶⁵ Patient aged 30 years. Had had three previous pregnancies, and was delivered of her fourth child three weeks prior to her admission to the hospital, the labor being normal and the placenta complete. She rose on the fourteenth day and suffered at once from a slight hemorrhage. On rising two days before her admission she had a profuse hemorrhage. On June 20, 1896, the os was dilated, and a mass adherent to the posterior wall of the uterus and feeling like placental tissue was removed by the finger and curette. Sepsis developed, and on July 14 there occurred a profuse discharge of blood-stained serum and clots. On the next day the os was found to be patulous, and a rough mass, unassociated with fetor, projected. This grew from the posterior wall and consisted of pale organized tissue. On its removal the uterine wall was found to be very thin. Sepsis

again followed, and the antistreptococci serum was injected, but the patient died July 25. Autopsy revealed a characteristic growth in the posterior wall of the uterus, irregular, pinkish, and granular, with metastases the size of a pea to a small walnut, deep red in color, in the lungs and right ovary. A microscopic examination showed the characteristic features.

52. Freeborn.⁶⁶ Patient had been pregnant, and hysterectomy showed a small nodule which proved to be decidual sarcoma.

53. Schultze.⁶⁷ Patient operated upon by Dr. McCosh; aged 40; two children, last ten years previously. October 1, 1895, began to have uterine colic and hemorrhage; fetid discharge; uterus curetted on October 20. Bleeding recurred. Hysterectomy done November 5. Discharged cured December 12. Examination of uterus showed a uterus septus and a small growth in posterior wall on right side of uterus. Microscopical examination: Langhans cells, syncytial masses.

54. Von Franqué.⁶⁸ Patient aged 32 years. Had had six children, last child March, 1895. Four weeks after delivery, bleeding from uterus, which continued until July, 1895. Examination at that time showed uterus enlarged and soft, os patulous. On curettage placental tissue removed, which on examination proved to be syneytioma. August 3, 1895, vaginal hysterectomy. Tumor size of hen's egg found in posterior wall of uterus. Microscopical examination showed syncytial elements and Langhans cells. March, 1896, patient still well.

55. Freund.⁶⁹ Patient aged 40 years; three children, last in July, 1894. Constant bleeding from that time until October 1, 1894. Examination then found the uterus enlarged, os patulous, and a placental polypus size of a plum could be felt in the cervical canal. It was removed and on examination found to be benign. Examination seven weeks later showed small tumor in posterior wall of vagina. Bleeding set in and continued until September 17, 1894. Vaginal tumor was then removed. Examination showed it to be a sarcoma deciduo-cellulare. January 9, 1895, uterus found to be much enlarged and soft; other growths in posterior wall of vagina. Microscopical examination: the scrapings from the uterus gave negative results. January 29, vaginal hysterectomy and excision of vaginal tumor. A large tumor was found springing from the anterior wall of the uterus. Microscopical examination: *syncytial elements only*. Patient recovered; still well after one and a half years. *Note.*—Placental polypus did not show malignancy.

56. Karstrom and Vestberg⁷⁰ (Case I.). Patient aged 32 years. Premature labor three years previously. Discharged a mole, after three-months pregnancy, in October, 1895; one week later hemorrhage, chills, fever, and pain in pelvis. April 27, vaginal hysterectomy and a small mass removed from vagina. Patient recovered. Uterus showed mass in posterior wall. Microscopical examination showed syncytial masses and Langhans cells.

57. Karstrom and Vestberg⁷⁰ (Case II.). Patient aged 36 years; three normal labors; three abortions, last one April 3, 1895. Hemorrhages in October, 1895; vaginal hysterectomy. Patient recovered. Nodule in posterior wall. Microscopical examination; syncytial masses.

58. Gebhard⁷¹ (Case I.). Aged 30 years; admitted to hospital April, 1896; had had eight children, last six months previously. Seven weeks after the last labor, hemorrhage, which continued until admission. On admission uterus enlarged and soft; os patulous; bloody discharge issuing from the uterine cavity. Soft tumor can be felt by the finger on posterior wall of uterus. Vaginal hysterectomy. Patient recovered. Microscopical examination showed tumor to consist of syncytial elements and Langhans cells.

59. Gebhard⁷¹ (Case II.). Aged 23 years; four children, last premature July 5, 1896. Last menstruation November 1, 1896. Admitted to hospital January 2, 1897, on account of irregular bleeding and pain in the abdomen. On examination uterus found to be enlarged and extending to the umbilicus; os patulous; bloody discharge from cavity. January 7, removal of hydatid cysts. February 2, discharged cured. Several days later profuse hemorrhage occurred. Diagnosis of syncytioma malignum. Vaginal hysterectomy. *Right ovary cystic*. Discharged cured March 6. Small tumor found in posterior wall of uterus. Cervix irregular and jagged. Microscopical examination of the scrapings from the uterus showed chorionic villi with hydatid degeneration and a proliferation of the syncytial elements and Langhans cells. Microscopical examination of the tumor proved it to consist of syncytial elements and Langhans cells.

60. Gebhard⁷¹ (Case III.). Patient aged 26 years. Normal labor three years previously. September, 1896, missed a period. Began to bleed in October and continued until the latter part of December. Since January began to have pain in abdomen and suffered from cough and thick mucous expectoration. February, 1897, uterus slightly enlarged, and a tumor size of hen's egg in anterior wall of vagina, which was extirpated February 16. March 1, patient died. Autopsy: Uterus showed tumor size of an orange near left cornu. Metastatic deposits in the brain (left occipital lobe), lungs, spleen, mesentery. Microscopical examination: Syncytial elements and Langhans cells.

61. Martin and Kieffer.⁷² Aged 28 years; three pregnancies. Fourteen months previously aborted in fifth month; had uterine hemorrhage since then; became anemic. Examination revealed uterine tumor. Vaginal hysterectomy. Patient made good recovery. Microscopical examination revealed syncytial elements and Langhans cells.

62. Zondek.⁷³ Patient aged 43 years; had had twelve children, four abortions. In December, 1896, was delivered of a mole in the seventh month and was everted. In January, 1897,

uterine hemorrhage, after which was again curetted. Another hemorrhage in latter part of January. Uterus, then examined, was found enlarged; curettage. February 23, vaginal hysterectomy. Patient recovered. A tumor was found in anterior wall of uterus. Microscopical examination showed syncytial elements and Langhans cells.

63. Munod and Chabry.⁷⁴ Patient aged 27 years. Admitted to hospital March 13, 1896, because of severe hemorrhage. Three years previously, after amenorrhea for three months, severe hemorrhage. Uterus was found enlarged and soft with retained masses. Curettage brought away small cysts. Bleeding continued, and curettage later. June 9, vaginal hysterectomy. Remains of mole were also brought away after curettage. Patient recovered. *Both ovaries cystic*. Microscopical examination of uterus showed it to be chorio-deciduo-sarcoma.

64. Reinecke.⁷⁵ Patient aged 27 years; laparatomized June 9 for internal hemorrhage. Small perforation was found in posterior wall of uterus, due to the breaking down of intra-uterine soft tumor. Patient recovered. Had one normal delivery in September, 1891.

65. Jurasowsky.⁷⁶ Two years after expulsion of hydatid mole, patient was operated on for tumor of the uterus. Died immediately after operation. Metastases found in brain.

66. Ulesko-Stroganowa.⁷⁷ Aged 26; married eight years; no previous pregnancies. Had uterine hemorrhage from November, 1894, until January 11, 1895, due to a mole, for which she was curetted. Later other hemorrhages. Uterus dilated and found to contain soft tumor attached to posterior wall. September 26, vaginal hysterectomy. Patient recovered. Microscopical examination: Syncytial cells and Langhans cells.

67. Fränkel⁷⁸ (Case I.). Patient aged 29 years; two children; miscarriage in the fifth month. January, 1895, pelvic inflammation with cessation of menstruation. Death June, 1895. Autopsy: Uterus enlarged and small tumor in uterine wall. Metastases in cervix, vagina, liver, lungs, and kidneys. No microscopical examination.

68. Fränkel⁷⁸ (Case II.). Aged 31 years. Two children, second delivery October 31, 1891. Seven days after the delivery, profuse bleeding, which continued for two and a half months, when patient died. Tumor size of a hazelnut found in uterus, soft nodules in vagina.

69. Fränkel⁷⁸ (Case III.). Patient 48 years old; five children, last child sixteen years previously. In June, 1896, delivered of a mole. Curetted three days later. Was well for four weeks, then a hemorrhage which continued for several weeks. Diagnosis of deciduoma malignum. August 3, vaginal hysterectomy. Patient recovered. November, 1896, was still well. Examination of the uterus revealed tumor the size of pigeon's egg. Microscopical examination: Syncytial elements and Langhans cells.

70. Schmorl.⁷⁹ Patient 30 years old. Eighteen weeks after normal delivery, noticed small tumor in vagina. Patient died within six months. Autopsy showed hemorrhagic tumors of uterus and metastases in lungs, kidneys, and other organs. Microscopical examination showed syncytial elements and Langhans cells.

71. L. Pick.⁸⁰ Patient aged 22 years. In fourth month of pregnancy discharged hydatid mole, and tumor was found, size of walnut, in anterior wall of vagina. Vaginal tumor removed and found to consist principally of syncytial elements. Patient remained well three and a half years later. *Note.*—Microscopically nothing abnormal found in uterus.

72. Bulius⁸¹ (Case I.). Patient 49 years old. Four children; last child eighteen years previously, since which time menstruation regular until one year previously, then metrorrhagia, especially in last ten weeks. Small tumor found near right cornu of uterus.

73. Bulius⁸¹ (Case II.). Similar to Sängers's case. Sarcoma deciduo-cellulare.

74. Bulius⁸¹ (Case III.). Patient aged 43; five children. Since January, 1897, metrorrhagia; uterus extended above the umbilicus and containing a fetus. Soft tumor of cervix. Fetus extracted and vaginal hysterectomy performed. Examination showed syncytial elements and decidual cells.

75. Rosner.⁸² Patient aged 20; one child one year previously. Bleeding for four months. Anemia. Uterus normal; right tube enlarged. Tumor size of hazelnut in anterior wall of vagina. Vaginal tumor removed and uterus curetted. Examination of scrapings negative. Later two vaginal tumors appeared. Patient died in a few weeks. No autopsy. This was possibly a tubal pregnancy.

76. Neumann.²⁶ Patient's age not stated. Three normal deliveries. Last menstruated in July, 1896. End of September, bloody discharge lasting for weeks. November 10, examination showed uterus enlarged to above the umbilicus. Fetal parts not palpable. Several tumors size of hazelnut in anterior vaginal wall. November 14, hydatid mole expelled. Endometrium normal. Vaginal tumors excised. Microscopical examination of these tumors typical and showed syncytial growths. On December 2, abdominal hysterectomy with recovery.

77. Pick⁸³ (Case I.). Patient 52 years old; had had five children and three abortions. In October, 1895, no menses; in February, 1896, severe hemorrhage. In April discharged a mole. Uterus cleaned out. Four weeks later a severe hemorrhage with clots. Patient was anemic; cough and expectoration. May 11, 1896, death. Metastases found in lungs, spleen, and small masses in uterus. Microscopical examination: Syncytial elements.

78. Pick and Sippel⁸³ (Case II.). Patient 37 years old. Hemorrhage after normal labor in December, 1896. Beginning

of 1897, again hemorrhages. March 8, entered hospital with fever and was curetted. Patient died April, 1897. Small masses found among the curettings. Microscopical examination of the scrapings from the uterus showed syneytial masses, also Langhans cells.

79. Pick and Sippel⁸³ (Case III.). Patient 26 years old, fourth child October 23, 1896. Expelled a mole November 14, 1896. Masses could not be curetted. Microscopical examination confirmed diagnosis of malignancy. November 25, vaginal extirpation. March 23, 1897, patient still in good health. Uterus size of a four-months pregnancy. Tumor mass situated in the posterior wall near tube. Microscopically, some syneytial masses, principally Langhans cells.

80. Marehand⁹ (Case II.). Patient aged 42 years; five normal deliveries. Last menstruation January 31, 1897. In February slight bleeding. April 27, hemorrhage and discharge of hydatid mole. Curettage. Profuse hemorrhage in the middle of May, another at the end of May. Admitted to hospital June 3; uterus enlarged; curettage; brought away tissue. June 13, very profuse hemorrhage; another curettage. June 14, hysterectomy. July 10, patient discharged cured. Roundish tumor, one to one and a half centimetres, of reddish color, in anterior wall of uterus. Microscopical examination showed syneytial elements and Langhans cells.

81. Marehand⁹ (Case II.). Patient aged 23 years. March, 1897, discharged hydatid mole after having amenorrhea five months. Admitted to hospital May 12, on account of uterine hemorrhage. Uterus found enlarged. Curettage. Microscopical examination proved negative. Uterine hemorrhage in September with eachexia; no cough. Later small mass discovered in the anterior wall of the vagina; uterus enlarged. Curettage; scrapings showed suspicion of malignancy. September 20, hysterectomy. September 25, bloody sputum; examination showed large round, flat, and pigmented cells which were of alveolar epithelium. November 4, death. Autopsy: Metastatic deposits in lungs, pleural cavity, spleen, liver, peritoneum, also right lip of vagina. Microscopical examination showed syneytial elements and Langhans cells.

82. Holleman (quoted by Marehand⁹). Patient aged 52 years. Discharged mole four years previously. Uterine hemorrhage for nine months, then amenorrhea for three years, followed by profuse hemorrhage. Curettage revealed nothing abnormal. Hysterectomy showed tumor size of cherry.

83. Kelly and Teacher.⁸⁴ Patient aged 27 years. Became gravid February 22. Slight hemoptysis. This continued until April 20; then some vaginal discharge. June 18, expulsion of mole; no tumor in vagina. Vaginal hemorrhage continued until August 7, and a small tumor in anterior wall of vagina detected. August 18, vaginal tumor excised. Uterus enlarged. September 24, severe uterine hemorrhage and collapse. Death Octo-

ber 19, four months after abortion. Autopsy: Vaseular tumor in posterior wall of uterus. Metastases in vagina and cervix, also in lungs. Microscopic examination showed both epithelial layers of the chorion.

84. Trantenroth⁸⁵ (Case I.). Patient aged 38 years. Six children, the last November 16, 1895. Severe bleeding after delivery. Bleeding continued. Admission to the hospital March 26, 1896. Uterus was then found enlarged, os patulous, and with sound a tumor could be felt in posterior wall. Microscopic examination of a portion of same, which was removed with curette, showed deciduoma malignum. March 31, vaginal hysterectomy. Died April 12. Autopsy: No metastases found; uterus showed a tumor, three centimetres in width, in posterior wall of uterus. Microscopic examination showed syncytial elements and cells of Langhans.

85. Trantenroth⁸⁵ (Case II.). Patient aged 48 years. Admitted January 20, 1897. In February, 1896, was treated for an abortion, and from that time until admission there was irregular bleeding. Uterus was found enlarged and os patulous; a soft mass protruded from the os, with bloody discharge. Immovable tumors in both ovarian regions. In anterior wall of lower vagina two small tumors size of pea. Vaginal section. Patient died shortly after. Autopsy: Tumor in uterus and ovary; metastases in intestines, liver, kidneys, and lungs. Microscopical examination: Syncytial elements and Langhans cells.

86. Veit.⁸⁶ Patient aged 32 years; six children, last one in April, 1897. Menstruated three times after last labor. No menstruation in October. Curetted in January, 1898. Bleeding continued until February 19, when examination of uterus revealed a growth on placental site and on the side of the uterus. Hysterectomy February 25. Patient recovered. Microscopical examination showed deciduo-sarcoma.

87. Boldt.⁸⁷ Patient aged 32 years. Aborted in January. Admitted end of January, 1898. Curetted; profuse hemorrhage. Uterine examination: Found neoplasm, size of a walnut, situated at placental site. Four days later, hysterectomy. Uterus enlarged. Left half of anterior wall, spongy growth. Microscopical examination: Small round cells.

88. Resinelli.⁸⁸ Patient 39 years old; four children, all normal. May, 1897, hemorrhage while she was engaged in ordinary occupation; some days after, discharged mole; hemorrhage continued. Patient grew anemic. On examination two tumors were found in wall of vagina, uterus enlarged; also tumor in Douglas' cul-de-sac. Microscopically: Syncytial masses and Langhans cells. Vaginal tumors excised. September 10, bloody expectoration; does not contain epithelial elements. September 12, another vaginal tumor. Patient died October 8, 1897. *Note.*—Died from exhaustion from the ulcerated vaginal tumors and uterus, four months after incomplete expulsion of mole, and two months after appearance of metastases in vagina. Autopsy

showed metastases in lungs; tumor tissue invaded the periosteum; ovaries large and cystic, not malignant; uterus enlarged; tumor occupying anterior wall. Microscopical examination: Syncytial and Langhans cells.

89. Morales Arjona.⁸⁹ Upon intrauterine digital examination a neoplasm could be felt on the posterior wall of the uterus, which aroused the suspicion of deciduoma malignum and was corroborated by the microscope. A vaginal hysterectomy with removal of the adnexa was done. The woman has remained well for over a year. Multinuclear masses of various and irregular forms, and these are found at the margins of the neoplasm.

90. Hellier.⁹⁰ Patient aged 39 years; has had seven children; last delivery January 20, 1897. Discharge continued, which became very offensive, up to the time of her admission into the hospital, June 1, 1897. On examination uterus was found enlarged, os patulous. The finger readily passed into the cervix; no new growth reached. Two weeks before admission she began to have a bad cough and bloody expectoration. On June 6, under ether narcosis, the uterus was curetted and soft granular material removed. Patient died four days later. Postmortem: Growth in uterus and transverse colon, omentum, intestines, and the appendix. There were metastatic lesions in the lungs and in the pericardium. The microscopical examination revealed the characteristic elements of deciduoma malignum.

91. Scherer⁹¹ (Case I.). Patient aged 33 years. Five normal labors, last 1894. Menstruation August, 1896; aborted a hydatid mole two weeks later; reddish-brown discharge. Hemorrhage continued and uterus remained enlarged, for which she was curetted June 15, 1896. A small placental mass removed. Some cough. Microscopical examination of mass removed showed deciduoma. Broad-base tumor found in the posterior wall of uterus. Vaginal hysterectomy. Death five days later. Autopsy showed metastases of brain, lung, spleen. Microscopical examination: Syncytial elements and cells of Langhans.

92. Scherer⁹¹ (Case II.). Patient 26 years of age. Last delivery in April, 1894. Since that time complains of cough and expectoration. Uterine hemorrhage, which continued until March 29, 1895, when she was curetted. Again curetted for hemorrhage in August, when a polypoid tumor was found on right of posterior uterine wall. Patient died. Microscopical examination showed syncytial elements and Langhans cells.

93. Blumenreich.⁹² Patient aged 26 years; three children; one abortion in July last. August 1, admitted to hospital. August 3, severe hemorrhage. Examination of uterus showed it to be enlarged and soft. Patient curetted. Examination of scrapings showed suspicion of deciduoma malignum. Patient recovered.

94. Prochownik and Rosenfeld.⁹³ Patient aged 37 years; married eighteen years; has had five children, the last three years previously. Two abortions in third month; last abortion 1896.

In February, 1897, last menses; aborted April 25. Cured on May 6. Bleeding continued until August 13, during which time curetted twice, when small placental polypi, size of a cherry, were removed from the cervix. Uterus enlarged and soft. September 17, hysterectomy. December 9, death. No autopsy. Tumor size of a pea in anterior wall near fundus. Microscopical examination showed Langhans cells and syncytial elements.

95. Poten and Vassmer.⁹⁴ Patient aged 36 years; married six years; two children, the last June, 1897. Examination November 7, 1899. Had had amenorrhea for about four months, when small-sized tumors were discovered in posterior wall of vagina. Uterus enlarged to about size of three-months pregnancy, and a hydatid mole removed. November 13, vaginal tumors removed and vaginal hysterectomy done. December 2, removal of a third metastatic growth in vagina. December 12, discharged cured. April, 1900, still perfectly well and no appearance anywhere in body of recurrence. Microscopical examination showed Langhans cells and syncytial elements.

96. Haultain.⁹⁵ September 10, after ten weeks of amenorrhea, expelled a hydatid mole and was curetted. Uterus remained large, and bleeding continued; was again curetted. November 21, profuse hemorrhage. November 24, vaginal hysterectomy. Recovery. Small growth in anterior wall. Microscopical examination showed syncytium and Langhans cells.

97. Schlagenhauser⁹⁶ (Case I.). Patient aged 37 years. Incomplete abortion in latter part of 1896. One month later, uterine hemorrhage. Patient was well until February, 1897, when there was a severe uterine hemorrhage which continued for fourteen days. In June, 1897, small vaginal tumor removed, which was first diagnosed as a vaginal varix and later metastasis of deciduoma malignum. Patient has remained well since extirpation of tumor until January, 1899. Hysterectomy was not performed on account of a wrong diagnosis. Two and a half years after extirpation of vaginal tumor patient is still healthy.

98. Schlagenhauser⁹⁶ (Case II.). Patient 27 years old; first child 1896. In 1897 abortion and severe hemorrhage. October 13, 1898, normal delivery; three weeks later patient began to suffer from dyspnea, fever, and expectoration. Death November 16, thirty-four days after normal delivery. Autopsy: Metastases in lungs, spleen, kidneys, and vagina; tumor found in posterior wall of uterus. Microscopical examination showed tumor and metastatic deposits to consist of syncytial elements and Langhans cells.

99. Müller.⁹⁷ Patient aged 28 years. Two normal deliveries. March, 1898, hydatid mole was expelled in fourth month of pregnancy, followed by hemorrhages and emaciation. July 1, curetted. Scrapings, examined microscopically, show deciduoma. July 15, vaginal hysterectomy. Recovered. January, 1899, patient still well. Microscopical examination not stated.

100. Von Guérard.⁹⁸ Patient aged 40 years. January 30, 1899, abortion at three months. Uterus curetted. Six days later patient had severe hemorrhage, followed by moderate amount of bleeding. Curettage checked bleeding. Five months later spontaneous hemorrhage and collapse. Examination revealed small tumor, size of hazelnut, in anterior surface of lip. Vaginal hysterectomy. Patient recovered. Microscopical examination showed syncytial masses.

101. Anders⁹⁹ (Case I.). Patient aged 41 years. Six children, last two and one-half years ago. In December, 1896, abortion with profuse hemorrhage. In March, hemorrhage again, which continued for three or four weeks. Uterus enlarged and can be felt above the symphysis; also a small, movable, hard swelling in anterior wall of vagina. Patient died December 12. Autopsy: Right ovary cystic. Hemorrhagic infarcts in the lungs, and left ovary contains similar hard mass.

102. Anders⁹⁹ (Case II.). Patient 25 years old. First child in 1893. Severe hemorrhage from November 8 to December 23, 1897, which continued until March, 1898. Examination of uterus showed soft tumor occupying the cervix. Death March 14. Autopsy: Uterus large; a soft tumor involving the uterus, tubes, and ovaries; small-sized swelling near the right cornu. Microscopically, cells of Langhans and syncytial elements.

103. Smyly.¹⁰⁰ Patient aged 33 years; four children. Discharged mole December 18, 1897, eight-months pregnancy. Hemorrhage March, 1898; curettage. Died two months later from metastasis.

104. Jorgensen.¹⁰¹ Patient aged 49 years; curetted after abortion. Diagnosis of deciduoma malignum made from scrapings. Hysterectomy done and patient was well one year later.

105. Solowij and Krzyszkowski.¹⁰² Patient aged 47 years; ten children, full term; last child five years previously. Admitted to hospital February 17, 1899. Since December, 1898, amenorrhea and pain in abdomen. Uterus enlarged to below the umbilicus. Bloody discharge. Immovable mass in right pelvis. Uterus emptied of hydatid mole. Patient died a few days later from hemorrhage and sepsis. Autopsy: Growth involving the anterior wall of uterus, also one on each side involving the adnexa. Two metastatic deposits in lungs.

106. Kolomenkin.¹⁰³ Patient aged 41 years; had eleven children, last ten months previously. Two months after delivery began to have menorrhagia and pain in the right hypogastric region. Admitted to hospital December, 1897. Examination shows uterus enlarged, with a tumor connected with it. Foul discharge from uterine cavity. December 29, vaginal hysterectomy. Intestine found adherent to tumor occupying fundus of uterus. Complete recovery. Six months later no metastases nor recurrence; a large tumor occupying posterior wall of fun-

dus, and one, size of walnut, in posterior wall of cervix. Microscopic examination: Langhans cells and syncytial masses.

107. Krebs.¹⁰⁴ Patient aged 23 years; had one child middle of December, 1898. February 9, 1899, consulted Prof. Fränkel because of uterine hemorrhage since delivery. He found uterus enlarged, soft, and retroflexed. Curettage. Placental polypus removed, which on examination proved to be benign. Bleeding continued until April 13. Presented herself because she believed herself to be pregnant. Uterus on examination found to be very much enlarged. May 11, uterine hemorrhage with discharge of hydatid mole. June 5, was seized with severe hemorrhage and high fever, and died that day. Autopsy showed uterus to be filled with a large, soft, fibrous bleeding tumor. Slight rupture in posterior wall of uterus. *Note.*—Case of sudden death from rupture. Microscopical examination showed syncytial masses only.

108. MacFarland¹⁰⁵ (occurring in the practice of Charles P. Noble). First reported in the *Medical News*, December 8, 1894, as a case of round-celled sarcoma, is now reported as deciduoma malignum. Patient aged 30 years; married. Two children, last two and one-half years ago. One miscarriage between births. September 22, 1892, to June, 1893, profuse menstruation. Examination showed uterus to be enlarged, a sloughing mass in the uterine cavity, and a foul-smelling bloody discharge. Curettage was done. Examination at the time of the scrapings showed nothing definite. Vaginal hysterectomy June 28, 1893. Remained well to November, 1893, when she was taken sick with cough, expectoration, and anemia. Died December, 1893. Examination of uterus showed tumor projecting from posterior wall of uterus.

109. Steinhaus.¹⁰⁶ This case, first reported in 1892 as carcinoma, is now reported in the *Centralblatt für Gynäkologie*, volume xxiv., 1900, as a deciduoma malignum. Patient was 28 years old. Last child three and one-half years ago. Aborted in the third month. Vaginal tumor removed from anterior wall. Patient died shortly after from severe uterine hemorrhage. Uterus was filled with a sloughing mass.

110. Peham¹⁰⁷ (case from Chrobak's clinic). Patient 25 years old. Aborted in March, 1899. Bled until September, 1899. Examination then showed uterus enlarged and os patulous. In anterior wall of left cornu, small mass. November 4, bleeding from the uterus. Mass size of hazelnut in anterior vagina. A few days later, hemoptysis. November 9, vaginal hysterectomy and excision of vaginal mass. Patient recovered. Microscopical examination showed syncytial masses and Langhans cells. Metastatic growth identical with the primary uterine growth.

111. Schmit.¹⁰⁸ Patient aged 36 years. Pregnant nine times, five at term and four abortions. Last pregnancy November, 1899, mole expelled spontaneously. Bleeding for six weeks sub-

sequently. Entered hospital March 9, 1900, because of a tumor, size of an egg, in anterior lateral wall of vagina. Curettage done. Tumor exsised. Patient discharged twelve days later. Microscopical examination of curettage serapings showed syncytial elements only. Patient seen eight months later, is still well.

112. Gottschall.¹⁰⁹ Patient aborted in fourth month of pregnancy, and two months later sudden collapse with symptoms of internal hemorrhage. Ectopic gestation suspected. Abdominal incision showed rupture of the uterus due to deciduoma malignum. Adnexa normal. Patient died. Microscopical examination showed Langhans cells and syncytial elements. No autopsy.

113. Hitschmann.¹¹⁰ Patient aged 38 years; six children. Last period in August, 1900. Examination shows uterus enlarged, os patulous. Tumor involving the entire posterior wall of uterus. Vaginal hysterectomy. Microscopic examination showed syncytial elements and cells of Langhans. Patient died three weeks later. Metastases, tumor size of egg in vagina, brain, kidneys, intestines, lungs, liver, spleen, also in thyroid gland.

114. Schmorl.¹¹¹ Patient aged 23 years. In March, 1899, normal delivery. Began to suffer from anemia, cough, and expectoration. Died suddenly December, 1899. Autopsy showed uterine hemorrhage. There was a tumor, size of a pea, in the posterior wall of the uterus, but not connected with the peritoneum or endometrium. Both ovaries cystic. Metastatic deposits in liver and kidneys. Microscopical examination showed syncytial elements and Langhans cells, with the former predominating. *Note.*—Uterine tumor metastatic. No primary tumor in uterus and tubes.

115. Schmit.¹¹² Aged 41 years. Aborted after seven-weeks pregnancy and was eurented; six weeks later hemorrhage, also vaginal tumor size of hazelnut. Microscopical examination of the ineised tumor showed syncytial masses and Langhans cells. Serapings from uterus normal. Uterus not removed. *Note.*—This is a case of primary vaginal chorio-epithelioma.

116. Sticher.¹¹³ Patient 34 years old. Five normal births. Two years previously aborted a four-months mole; since then hemorrhage off and on. One year after abortion, curettage. Hysterectomy recommended at the time because microscopical examination showed deciduoma malignum. One-half year later applied for treatment at hospital because of bloody discharge; loss in weight. Microscopical examination revealed deciduoma malignum. Hystereetomy performed. Small masses in uterus found. *Note.*—Slow progress of the disease. Operation one and a half years after mole abortion. The disease diagnosed one year after abortion. Patient recovered. No metastases. Microscopical examination showed syncytial masses and Langhans cells.

117. Lindfors.¹¹⁴ Patient aged 22 years. After normal de-

livery in July, 1900, had a small vaginal tumor removed from anterior wall in September, 1900, which proved to be metastatic syncytioma malignum. Scrapings from uterus revealed nothing abnormal. Uterus not removed. Well in December, 1900. In April, 1901, appeared again for treatment for cough and expectoration, and died April 8. Autopsy: Effusion in the left pleura; tumor occupying left lung; deposits in the right lung, spleen, brain, liver, kidneys, and intestines; uterus and general organs normal. Microscopical examination: Chorio-epithelioma malignum.

118. Bruce and Inglis.¹¹⁵ Patient aged 22 years. One child. Amenorrhea five months, then constant hemorrhage, followed by discharge of hydatid mole January 28, 1901. Uninterrupted recovery. Discharged February 7. June 23, was seized with an epileptic fit and died three days later. Autopsy showed two tumors in anterior wall and nodules in lungs. There were one large and several smaller blood clots in occipital lobe, also tumor in uterus. Primary tumor and metastatic deposits showed, microscopically, syncytial masses and Langhans cells.

119. McDonald.¹¹⁶ Patient 30 years old; married seven years; had two children, the last five months previous to admission. Miscarriage three weeks previous to admission. Curetted twice for severe hemorrhage, bringing away placental tissue. On admission to hospital, growth found in anterior wall of vagina, also growth springing from fundus of uterus. Patient died of exhaustion; no autopsy. Microscopical examination of primary tumor showed both syncytial cells as well as decidual cells.

120. Horrocks.¹¹⁷ Patient aged 40 years; multipara. Abortion in 1898, and doubtful history of another in October, 1900. Admitted to hospital March 4, 1901. Vaginal hysterectomy March 8, 1901. Made good recovery. Left hospital in four months. Two months later was seized with hemorrhage and died at home. No autopsy. A rounded, irregular raised area found in anterior of uterus, extending through uterine wall and peritoneum. Microscopically, composed chiefly of syncytial masses and also decidual cells.

121. Winkler¹¹⁸ (Case I.). Patient aged 33 years. Married eight years; three normal births, last four years previously. For four months irregular hemorrhage. Tumor size of child's head felt above symphysis, apparently attached to uterus. Patient has had a cough, expectoration, and dyspnea. Infiltration over left lung. Autopsy showed deciduoma malignum of fundus, hydrothorax, metastases in lungs, cervix, uterus, and vagina. Microscopical examination: Syncytial masses and decidual cells.

122. Winkler¹¹⁸ (Case II.). Patient 26 years old. Mole expelled one year previously. Recently pain and swelling in abdomen. Tumor found in uterus, metastatic deposits in vagina and broad ligament. Uterus reaches as high as umbilicus, ad-

herent to intestines. Patient died one year after expulsion of a mole; death due to new growth in uterus and lungs. Microscopical examination of tumor: Decidual and syncytial cells.

123. Brothers¹¹⁹ (from Boldt's clinic). Patient aged 24 years. Family history negative. In June, 1899, eight-weeks abortion. In June, 1900, after missing a period, hemorrhage and curettage. Another hemorrhage two and a half weeks later. August 21, uterus curetted, small mass removed. Mass pronounced myxoma on microscopical examination. September 30, another profuse hemorrhage. October 25, incomplete curettage on account of severe hemorrhage. October 26, 1900, vaginal hysterectomy. Patient recovered.

124. Holzapfel.¹²⁰ Patient aged 37 years. Two years previously an abortion in third month; for three months subsequently regular menstruation, then irregular. December, 1900, vaginal hysterectomy. Tumor size of walnut in posterior wall of uterus. Uterine tumor had no connection with mucosa.

125. Kworostansky¹²¹ (Case I.). Patient aged 27 years; two children, last child January, 1897. In September, 1899, admitted to hospital for irregular menstruation. Uterus slightly enlarged, os patulous, mass protruding from os. Diagnosis: Incomplete abortion. Curetted and discharged. Uterine hemorrhage four weeks later. Examination revealed small tumor in anterior wall of uterus. After removal examination showed syncytioma malignum. Vaginal hysterectomy. Patient died November 8, 1899. Autopsy: In addition to the small tumor in uterus, metastases in liver, spleen, and pleura. Microscopically: Syncytial masses and Langhans cells.

126. Kworostansky¹²¹ (Case II.). Patient aged 24 years; married four years; two children. In November, 1899, aborted in sixth month. Some bleeding subsequently. In May, 1900, profuse hemorrhage, for which she was curetted. June 16, another hemorrhage. Uterus found enlarged and curetted. Bronchial breathing over right lung. Examination of scrapings showed syncytioma malignum. July 2, vaginal hysterectomy. Patient recovered. Lung symptoms disappeared. Tumor size of hazelnut in anterior wall of uterus. Syncytial and Langhans cells.

127. Buist¹²² (Case I.). Patient aged 42 years; had seven normal pregnancies and two abortions. February 13, 1901, had a hemorrhage and discharged several cysts. Was then curetted. From that time until April 9 had several severe hemorrhages, but was again curetted on that date. Bleeding recurred on April 24. Hysterectomy May 6. Both ovaries cystic and size of an orange. Died twenty-four days after operation. No autopsy. Uterus had ulcerating masses in anterior wall composed of Langhans cells and syncytial masses.

128. Buist¹²² (Case II.). Patient aged 24 years. Admitted to hospital May 19. One child two years previously. One abortion in the third month seven months previously; had irregular

bleeding since. Was curetted in May, 1900, and was discharged. A month after curettage had uterine hemorrhage. August 24, operated on for tumor in right iliac fossa connected with the uterus. Uterus and tumor removed. Patient died of exhaustion two months later. Family history: Father and ten-year-old brother died of malignant growths in abdomen. Metastases in right lung, liver, kidneys, pancreas, heart, and left ovary. Microscopically: Langhans cells, but no syncytial masses.

129. Langhans¹²³ (Case I.). Patient 39 years old; six children, the last four years previously. No menstruation since September, 1899. Examination January 20, 1900. Uterus reaches umbilicus. Uterine hemorrhage. Mole removed. Bleeding continued. March 18, mass filled uterus. May 16, profuse hemorrhage. September 4, death. Microscopical examination: Decidual cells, syncytial masses.

130. Langhans¹²³ (Case II.). One child, normal delivery, July 12, 1898. Menstruated again in August and September. Six weeks later profuse hemorrhage. Subsequent to this irregular bleeding and weakness. Examination June, 1899, irregular mass in cervical canal. Microscopical examination of mass shows chorio-epithelioma. July 31, 1899, extirpation of uterus. Patient healthy in August, 1900.

131. Langhans¹²³ (Case III.). Patient 29 years old; admitted May 16, 1900. Normal delivery six months previously, then menstruation regular until January, followed by profuse irregular bleeding. In April noticed vaginal tumor. Growth removed and patient got well. Bleeding recurred. Tumor appeared again on May 16. June 4, uterine hemorrhage; exploration of uterine cavity shows excrescences on the left wall of uterus. Curettage. Microscopical examination of the scrapings showed no sign of chorio-epithelioma. June 23, walnut-sized elevation in fundus of uterus. Microscopical examination of specimen: Syncytial and Langhans cells. Patient recovered.

132. Langhans¹²³ (Case IV.). Patient 30 years old. Admitted July 6, 1899. Had had three children, last 1897. Last menstruation February, 1899. In April, profuse hemorrhage and discharge of mole. Since then bleeding, no pain. Curettage. Microscopical examination of scrapings showed chorio-epithelioma. July 16, extirpation of uterus.

1289 MADISON AVENUE.

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